



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/800,782	03/15/2004	Atsushi Ito	501558.20014	9198

26418 7590 02/21/2006

REED SMITH, LLP
ATTN: PATENT RECORDS DEPARTMENT
599 LEXINGTON AVENUE, 29TH FLOOR
NEW YORK, NY 10022-7650

EXAMINER

GOLDBERG, BRIAN J

ART UNIT	PAPER NUMBER
----------	--------------

2861

DATE MAILED: 02/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/800,782

Applicant(s)

ITO, ATSUSHI

Examiner

Brian Goldberg

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 9-16 is/are rejected.
- 7) ☒ Claim(s) 4-8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/15/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Takata et al. (US 2003/0160841).

3. Regarding claim 1, Takata et al. disclose “an ink-jet head (25 of Fig 2) having a plurality of ejection-energy generating elements (70 of Fig 3) for generating energies for ejecting an ink from a plurality of nozzles (24 of Fig 3), and a row of terminals (490, 491 of Fig 10) exposed on a surface thereof for energizing said plurality of ejection-energy generating elements; a flexible wiring board (49 of Fig 10) having a wiring pattern jointed in an end portion thereof to said row of terminals of said ink-jet head, said flexible wiring board extending in a direction perpendicular to a direction of extension of said row of terminals, and including an inclined portion extending from said end portion obliquely upwardly and outwardly of said surface of said ink-jet head (see Fig 10); and a rigid member (73 of Fig 10) having a higher degree of rigidity than said flexible wiring board and disposed on said flexible wiring board in contact with at least said end portion (see Par [0123]).”

Art Unit: 2861

4. Regarding claim 2, Takata et al. disclose "said rigid member includes an overhang portion (73a) located between said inclined portion and a joined portion of said wiring pattern and said terminals (490, 491 of Fig 10, see Figs 7 and 10 and Par [0123])."

5. Regarding claim 12, Takata et al. disclose "said flexible wiring board is a rectangular board (49 of Fig 10) including a longitudinal end at which said wiring pattern is joined to said row of terminals (490, 491) of said ink-jet head (see Fig 10)."

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takata et al. in view of Iemura et al. (US 4559545).

8. Regarding claim 3, Takata et al. disclose the claimed invention as set forth above with respect to claim 2. Takata et al. also disclose "said rigid member is a planar member (73 of Fig 10)." Thus Takata et al. meet the claimed invention except "said rigid member is...in contact with a surface area of said flexible wiring board which is larger than that of said joined portion of said wiring pattern and said terminals."

9. Iemura et al. teach "said rigid member (19) is...in contact with a surface area of said flexible wiring board (23) which is larger than that of said joined portion of said

Art Unit: 2861

wiring pattern and said terminals (20, also see Fig 3).” It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to provide the rigid member in contact with a greater surface area of the flexible board than the surface area of the joined portion. One would have been motivated to so modify Takata et al. for the benefit of increasing durability when actuating the drivers, as stated by Iemura et al.

10. Regarding claim 14, Takata et al. disclose the claimed invention as set forth above with respect to claim 1. Takata et al. also disclose “said rigid member is a rectangular member (73 of Fig 10).” Thus Takata et al. meet the claimed invention except “said rigid member is bonded to said flexible wiring board.”

11. Iemura et al. teach “said rigid member (39) is bonded to said flexible wiring board (42, see col 7 ln 62-64).” It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to bond the rigid member to the flexible board. One would have been motivated to so modify Takata et al. for the benefit of making a permanent connection between the two, as stated by Iemura et al.

12. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takata et al. in view of Oyanagi et al (US 20040094067).

13. Regarding claims 9-11, Takata et al. disclose the claimed invention as set forth above with respect to claim 1. Takata et al. also disclose the rigid member is formed of a ceramic material. Thus Takata et al. meet the claimed invention except “said rigid member is formed of a synthetic resin...wherein said synthetic resin includes polyethylene terephthalate...wherein said rigid member is formed of a metallic material.”

Art Unit: 2861

14. Oyanagi et al. teach forming a plate of a synthetic resin, such as polyethylene terephthalate, or a metal (see Par [0062]) as a substitute for a ceramic. It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to make the rigid member using a synthetic resin, such as polyethylene terephthalate, or a metal. One would have been motivated to so modify Takata et al. by substituting a synthetic resin, such as polyethylene terephthalate, or a metal for a ceramic because a synthetic resin, such as polyethylene terephthalate, is strong, tough, and a barrier to gas and moisture with resistance to heat, and a metal can be a single element that may reduce the cost of production.

15. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takata et al. in view of Tsutsumi et al. (US 4488161). Takata et al. disclose the claimed invention as set forth above with respect to claim 1. Takata et al. also disclose "said wiring pattern has a plurality of conductive wires which extend in the direction perpendicular to said direction of extension of said row of terminals (490, 491, see Fig 10)." Thus Takata et al. meet the claimed invention except "each of which has a terminal land at one end thereof, said conductive wires being connected to said terminals through the terminal lands."

16. Tsutsumi et al. teach each wire "has a terminal land (44) at one end thereof, said conductive wires (36) being connected to said terminals through the terminal lands (see Fig 7)." It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to provide terminal lands to connect the wires to the terminals.

Art Unit: 2861

One would have been motivated to so modify Takata et al. for the benefit of providing a more secure and durable connection between the wires and the terminals.

17. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takata et al. in view of Yanagi et al. (US 5801728). Takata et al. disclose the claimed invention as set forth above with respect to claim 1. Thus Takata et al. meet the claimed invention except "said flexible wiring board includes an electrically insulating flexible film...wherein said electrically insulating flexible film is a polyimide film."

18. Yanagi et al. teach "said flexible wiring board includes an electrically insulating flexible film" made of polyimide (see col 10 ln 20-21). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to have an electrically insulating flexible film made of polyimide as the flexible board. One would have been motivated to so modify Takata et al. in order to suppress the increase in the rigidity of the contact portion of the flexible board, as stated by Yanagi et al., thereby maintaining the flexibility of the board while providing insulation.

Allowable Subject Matter

19. Claims 4-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

20. The following is a statement of reasons for the indication of allowable subject matter: Regarding claims 4 and 5, the prior art does not disclose or suggest "said rigid member includes an easily deformable portion which is located at a distal end of said

Art Unit: 2861

overhang portion and which is more easily deformable in a direction of extension of said inclined portion of said flexible wiring board, than a portion of said rigid member which corresponds to said jointed portion of said wiring pattern and said terminals...wherein said easily deformable portion is a thin-walled portion having a smaller thickness than the other portion of said rigid member, said thin-walled portion being formed at a position at which said flexible wiring board is bent to form said inclined portion" in combination with the remaining claim elements. Regarding claims 6-8, the prior art does not disclose or suggest "said rigid member is a cured mass of an adhesive agent applied to a surface of said flexible wiring board which is opposite to a surface having said wiring pattern...wherein said cured mass of the adhesive agent includes an inner portion in the form of a lattice located within said jointed portion of said wiring pattern and said terminals" in combination with the remaining claim elements.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Goldberg whose telephone number is 571-272-2728. The examiner can normally be reached on Monday through Friday, 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2861

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BJG



February 15, 2006

Thinh Nguyen
Primary Examiner
Technology Center 2800